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John A. Miller
Warn, Burgess & Hoffmann, P.C.
P.O. Box 70098
Rochester Hills, MI 48307

EXAMINER	
GABOR, OTILIA	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/663,310
Filing Date: September 16, 2003
Appellant(s): CHOU ET AL.

JOHN A. MILLER
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 01/25/2006 appealing from the Office action mailed 11/04/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,242,740	LUUKANEN	6-2001
6,531,701	CHOU	3-2003
6,853,452	LAUFER	2-2005

6,885,965	BUTLER	4-2005

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3, 5, 12-25, 45-51, 58-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luukanen et al. (U. S. Patent 6,242,740) in view of Laufer (U. S. Patent 6,853,452) or Chou et al. (U. S. Patent 6,531,701) or Butler et al. (U. S. Patent 6,885,965).

Regarding claims 1, 5, 19, 20, 25, 45, 51, 52, 58, 59, 65 Luukanen discloses a system and method for the passive imaging of a sample in the THz frequency range, the system including a detection device (108) with a field of view (see Fig.1) and comprising a cold surface (111) positioned in the field of view of the detection device (108), the cold surface providing a cold background relative to the temperature of the sample (see Col.6, line 44-Col.7, line 8). Luukanen discloses that the system can be used in a variety of applications including submillimeter range spectroscopy, but he fails to specifically disclose that an emission spectrum is generated from the sample from which the chemical and biological materials present in the sample are detected. However, since spectroscopy inherently means generation of spectrum of radiation from the sample, and since the Luukanen system works in the passive mode, it would have been obvious that by stating that submillimeter spectroscopy applications are possible to mean passive emission spectra generation as disclosed by Laufer. Also, since Luukanen discloses that many different samples and their components can be analyzed and imaged, with focus on missile detection as well as temperature analysis (see Col.12, lines 43-67), it would have been obvious to one having ordinary skill in the art that this system can be used for the remote detection of chemicals in the air cloud or any other gaseous or liquid samples as disclosed in Laufer and/or Chou.

Regarding claims 2, 21, 46, 61 Luukanen discloses that the cold surface includes a THz absorber cooled by a container (dewar) containing liquid-nitrogen. Luukanen fails to disclose that the dewar contains liquid-helium to cool the absorbing material, however it would have been obvious to one having ordinary skill in the art to include liquid-helium

instead of liquid-nitrogen, for both are achieving the same goal of cooling down the absorber and such a substitution is within the skill of one in the art.

Regarding claims 3, 22, 60 Laufer discloses a FTIR as the spectrometer to perform the passive emission analysis (see Col.31, line 65-Col.32, line 8).

Regarding claim 12, 14, 16, 17, 18, 23, 24, 45, 47, 49, 50, 62, 63, 64 Luukanen discloses that the system comprises: an antenna with feed horn assemblies (see Col.9, line 50-Col.10, line 7) for collecting the emissions and directing the emissions to the detection device (see Col.11, line 55), a collimator (110) for focusing the field-of-view of the detection device onto the cold surface (111), a power splitter (bolometer lenses) and a plurality of detection channels (bolometer elements) to receive and direct emissions into the plurality of channels in order to detect multiple frequency bands simultaneously (see Col.11, lines 15-67), where the detection device is a terahertz receiver operating in the sub-millimeter frequency range (see Col.12, lines 56-59).

Regarding claims 13, 15 Chou discloses using a Cassegrain-type telescope to collimate the emission radiation.

Regarding claims 47, 48 Luukanen discloses a frequency amplifier but fails to disclose a diode or radiometer as the detector, however it would have been obvious to one having ordinary skill in the art to replace the bolometer element of Luukanen with a diode for detection of THz emissions, since such a switch is within the ordinary skill in the art (see Laufer, Col.12, lines 5-16, 27).

5. Claims 4, 6-11, 26-44, 52-57 rejected under 35 U.S.C. 103(a) as being unpatentable over Luukanen and Laufer or Chou and further in view of Arnone et al. (US 2004/0155665 A1).

Regarding claims 4, 6-11, 26, 32, 38, 52 Luukanen discloses the detection system for detecting and analyzing a sample, however it fails to disclose that the sample is in the claimed compartment, or transmissive substrate, or filter positioned in an air intake vent of a facility, or a plastic or glass container. However, since he discloses a general system of detecting and analyzing samples of any shape or form, it would have been obvious to analyze a sample that is contained in a sample container or filter as claimed, since as disclosed by Arnone, samples disclosed in containers transparent to THz radiation, is the typical way of analyzing whether certain materials are present in a sample. Since Luukanen does not limit where the samples are or in what they are contained as long as THz emission spectroscopy measurements can be done, it would have been obvious that his system can be used in situations where the sample is contained in a container or in air vents in buildings.

Regarding claims 27-31, 33-37, 39-44, 53-57 see paragraphs above.

(10) Response to Argument

Applicant's arguments filed 01/25/2006 have been fully considered but they are not persuasive: The main argument presented by the Applicant is that reference Luukanen discloses imaging of an object using a detector matrix, where the imaging system measures the object to identify its physical properties, and therefore it does not detect

the emission spectrum of the object to detect its molecular constituents, i.e., it does not disclose the claimed sub-millimeter spectrometer device. The Applicant admits that Luukanen allows for different types of measurements including sub-millimeter range spectroscopy, but it argues that such a spectroscopy is utilized only to detect metals, measurement of thicknesses, etc. (see page 9-10 of Brief). However, the Applicant misconstrues what the reference Luukanen discloses in Col.12, lines 43-48, because Luukanen does not state that the Luukanen system allows for "sub-millimeter range spectroscopy for the detection of metals, measurement of thicknesses..." (underline added for emphasis only), but it does state that the Luukanen system allows for "sub-millimeter spectroscopy, detection of metals, measurement of thicknesses,...and for many other applications". There is no "for" disclosed in that statement, which implies that the sub-millimeter spectroscopy application is not only for detection of metals and measurement of thicknesses, but that it is a separate application. Since, "sub-millimeter spectroscopy" inherently includes the generation of emission spectrums from the object under scrutiny, there is motivation to combine the Luukanen reference with any of the above enumerated references, because the secondary references disclose generic emission spectrum spectroscopy devices and methods. The second argument presented by the Applicant is that the Luukanen reference uses a cold surface for a different reason than the presently claimed cold surface. This argument however is not persuasive because the claim only asks for "a cold surface positioned in the field-of-view of the spectrometer device, said cold surface providing a cold background relative to the temperature of the sample", and therefore whether or not this cold surface is used

to reduce the background emission (claimed cold surface) or to provide a contrast between the sample temperature and the background temperature (Luukanen cold surface) as long as the Luukanen cold surface provides a cold background, which it does, relative to the temperature of the sample, the claimed limitation is satisfied. The rest of the arguments attack the references individually. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). For example, the Applicant argues that Laufer does not disclose a cold surface that is the same as the claimed cold surface. However, Laufer was used to disclose a generic FTIR as the spectrometer that performs passive emission analysis, and not for showing a cold surface.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

OTILIA GABOR

OTILIA GABOR
PRIMARY EXAMINER

Conferees:

DAVE PORTA

DREW DUNN